

Spice: A New “Legal” Herbal Mixture Abused by Young Active Duty Military Personnel

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ABSTRACT. Spice is an herbal mixture smoked for euphoria and mixed with synthetic cannabinoids that are undetected on urine drug screens. Spice use has increased in the military because it is considered legal and is not detected on urine drug screen. The authors describe 3 cases of Spice use in military members. Case 1: 19-year-old male presented with paranoia, agitation, and visual hallucinations after smoking the “Space” brand of Spice. Urine thin-layer chromatography (TLC) and gas chromatography–mass spectrometry (GC-MS) were negative. Case 2: 19-year-old female presented with sedation, amnesia, and agitation. She smoked the “Space” brand. She was alert within 3 hours of arrival. Urine GC-MS detected levorphanol. Case 3: 23-year-old male presented with delusions and paranoia. He complained of “monsters on his back.” His symptoms improved in the emergency department (ED). His urine TLC and GC-MS were negative. All cases were admitted and evaluated by a toxicologist; all 3 had their history corroborated by family or friends, or with drug paraphernalia. Spice is a new herbal mixture that is increasingly used in the military. Expected effects are similar to cannabis, but may include more paranoia and hallucinations, and may differ for each brand.

KEYWORDS. Cannabinoid, military, spice, substance abuse

INTRODUCTION

Use of synthetic cannabinoids, commonly referred to as Spice, has been reported since designer drug companies began selling it to the public in 2004 in order to facilitate a nondetectable, “legal high” (1). Drug enforcement agencies as well as the United States military have since begun to establish strict regulations in an attempt to decrease the use of such synthetic psychoactive substances (1). There are few reports of Spice use and its potential harmful effects is limited. In addition, although Spice use was first documented in the military ser-

vice members, reports of use in the military are even more rare (1, 2). We report 3 cases of military service members with adverse reactions after smoking Spice.

CASE REPORTS

Case 1

A 19-year-old active duty male arrived to the emergency department (ED) via emergency medical services (EMS) in restraints, with paranoia, aggression, agitation, and visual

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hallucinations 2 hours after smoking “Space,” a brand of Spice. He had no significant past medical history and did not take prescription medications or other supplements. He denied alcohol consumption or illicit drug use, and admitted to smoking tobacco. On arrival, pulse rate was 114 beats per minute; and blood pressure was 146/78 mm Hg. The remainder of his vital signs were normal. He exhibited mild agitation, but was not aggressive. His physical examination was otherwise unremarkable. Pertinent findings include elevated serum glucose of 197 mg/dL, normal white cell blood count, normal creatinine kinase, serum ethanol level <10 mg/dL, and urine drug screen was negative for amphetamines, barbiturates, benzodiazepines, cocaine, methadone, opiates, phencyclidine, propoxyphene, and cannabinoids. Urine thin-layer chromatography (TLC) was negative. Urine gas chromatography–mass spectroscopy (GC-MS) did not detect exogenous drugs or supplements. Intravenous lorazepam, 2 mg, was given for agitation, with resolution of symptoms. The patient was admitted overnight for observation. All symptoms resolved after 6 hours in the ED, vital signs returned to normal, and he was discharged 1 day after admission. The following morning, he admitted to smoking synthetic cannabinoids for several months, purchased locally. On the night of admission, he smoked a new brand, “Space.” He did not recall his ED course.

Case 2

A 19-year-old female presented to the ED with mild somnolence, amnesia to the night’s events, and mild agitation 3 hours after smoking “Space.” She had no significant past medical history and did not take other medications or supplements. She denied alcohol consumption, admitted tobacco use, and use of other drugs or supplements. Blood pressure on arrival was 138/70. The remainder of her vital signs was normal. She was mildly sedated, with the remainder of physical examination unremarkable. Pertinent laboratory results included serum glucose of 220 mg/dL and white blood cell of 17,000 cells/microliter. Serum ethanol (ETOH) was

<10 mg/dL and urine drug screen was negative. Urine TLC detected acetaminophen, dextromethorphan, and doxylamine. GC-MS also detected levorphanol. On arrival she was given naloxone with no change in somnolence. She was admitted for overnight observation. After 3 hours in the ED, she was alert, oriented with complete symptom resolution, and discharged home 1 day after admission. The next morning, she admitted to smoking Space and took 1 therapeutic dose of on an over-the-counter cold medication. She and her husband denied additional dosing and corroborated her history. She had been smoking spice for 3 months, but used a different brand the night of admission. She smoked spice with Case 1 on the night of the ED admission.

Case 3

A 23-year-old active-duty male arrived to the ED via EMS after being found wandering the parking lot of the military base housing in a panicked, agitated state. He complained of difficulty breathing. He admitted to smoking Spice earlier that day and stated he felt “monsters on his back” were making it difficult to breathe. The patient had no significant past medical history and was not taking any medications or supplements. On arrival he had a respiratory rate of 28 and pulse rate of 110, oxygen saturation was 100% on room air, remainder of vital signs were normal. Initial physical examination was remarkable only for paranoia, anxiety, and injected sclera. Pertinent laboratory findings included serum white blood cell count of 13,000, a negative urine drug screen, serum ethanol level <10 mg/dL, and remainder of laboratory results were all normal. Using urine TLC and GC-MS we did not detect other drugs or chemicals. He was treated upon arrival with lorazepam for agitation, intravenous fluids, and an antiemetic. The patient was admitted and observed overnight. All symptoms improved within 3 hours of arrival, he recalled the incident, and was discharged back to his unit without any complications 1 day after admission. The patient admitted to smoking Spice for the first time.

DISCUSSION

In our report, all 3 patients admitted to smoking Spice, and 2 smoked the "Space" brand. All were admitted and evaluated by a staff toxicologist. The cases demonstrated previously reported symptoms of agitation, anxiety, tachycardia, and states of altered perception or mental status (2, 3). Two of our cases demonstrated high blood pressure and hyperglycemia. Other previously reported findings that were not detected in our patients included rhabdomyolysis, nystagmus, seizure, pyrexia, hypoxia, tremor, and acidemia. Case 2 and case 3 used different brands of Spice and had elevated serum white blood cell counts. The 2 cases that smoked the "Space" experienced altered mental status, including paranoia, agitation, and mild sedation. TLC and GC-MS were performed for all cases and excluded other intoxicants that could cause similar clinical presentations and symptoms. We could not confirm synthetic cannabinoid exposure because at the time of these cases, we did not have access to a standard for evaluation by GC-MS. However, all 3 patients admitted to Spice use and their history was corroborated by another friend or family member. None of the cases required intubation or large doses of sedatives. In all 3 of the cases, symptoms resolved within 4 hours, with no complications during overnight observation. Since our cases, we have evaluated several more active duty troops who have admitted to smoking Spice.

The incidence of Spice use has been steadily increasing since it began being sold online and in smoke shops in Europe and the United States in 2004 (1). There is a paucity of reports describing common clinical presentations of people who use Spice in the civilian and military communities (4–6). Spice use is hypothesized to have begun in the Navy. The Army first reported Spice use in 2008 (7). The Army, Navy, and Air Force have current policies, Army Regulation 600-85, NAVADMIN 108/10, and Air Force Instruction 44-121, respectively, that prohibit distribution and use of substances, including Spice, with the intent to induce intoxication and stupefaction of the central nervous system (7–9). Despite regula-

tions, Spice remains popular among servicemen and women in all branches due to the inability to detect it on routine urine drug screens (9–11).

On November 24, 2010, the United States Drug Enforcement Agency (DEA) listed 5 synthetic cannabinoids (JWH-018, JWH-200, CP-47, 497, and cannabicyclohexanol) as schedule I substances. Currently, there are a variety of formulations of Spice being sold. Intentional variation in composition of synthetic cannabinoids by designer drug manufacturers exists to avoid legal action by the DEA (11). This addition of multiple, unregulated psychoactive compounds widens the range and severity of adverse reactions seen in individuals who use Spice. Reported reactions to smoking synthetic cannabinoids include xerostomia, sclera injections, increased appetite, hallucinations, anxiety, Spice dependence and withdrawal, and Spice-induced cannabis psychosis (9, 11).

CONCLUSION

We report 3 cases of military service members who admitted to smoking synthetic cannabinoids and presented with mild effects consisting primarily of tachycardia and high blood pressure. Two subjects manifested short-term delirium and hallucinations. Our findings are consistent with previously reported adverse reactions to Spice but also demonstrate the variation seen among individuals and among the different formulations of Spice.

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